

REMARKS

This response is intended as a full and complete response to the Final Office Action dated September 20, 2006. In view of the amendments and the following discussion, the Applicants believe that all claims are in allowable form.

DOUBLE PATENTING

Claims 1-15, 17-18, and 21-22 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 7,094,704. To expedite examination, Applicants submit a Terminal Disclaimer under 37 CFR 1.321(c) disclaiming the terminal portion of any patent that should issue from the present application so that such a patent would expire no later than the expiration date of U.S. Patent No. 7,094,704.

CLAIM REJECTIONS

A. 35 U.S.C. §103 Claims 1-4, 6, 8, 12-18 and 21-22

Claims 1-4, 6, 8, 12-18 and 21-22 stand rejected as being unpatentable over United States Patent Application Publication No. US 2001/0055852 A1, published December 27, 2001, to *Moise, et al.* (hereinafter referred to as "*Moise*") in view of United States Patent No. 6,790,755 issued September 14, 2004 to *Jeon* (hereinafter referred to as "*Jeon*"). In response, the Applicants have amended claims 1, 12, 17 and 21, and have cancelled claim 5 to more clearly recite certain aspects of the invention.

Independent claim 1, as amended to include the elements of claim 5, has been indicated as allowable by the Examiner. Thus, claims 2-4, 6-8 are patentable at least by virtue of their dependency from claim 1.

Independent claims 12, 17 and 21 recite elements not taught, shown or suggested by the combination of *Moise* and *Jeon*. *Moise* teaches to etch PZT, BST, or SBT using Cl₂, O₂, CF₄, and Ar. The O₂ gas may be interchangeable to CO gas, as listed in Table shown in paragraph 160. However, *Moise* does not teach, show or suggest a method of plasma etching by providing into the etch chamber a process gas comprising carbon monoxide and a halogen containing gas, wherein the carbon

monoxide is supplied at a gas flow rate between about 20 sccm and about 300 sccm and the halogen containing gas is supplied at a flow rate between about 20 sccm and about 200 sccm and a layer of dielectric material comprising at least one of HfO_2 , ZrO_2 , ZrSiO_2 , HfSiO_2 , and TaO_2 , as recited by claims 12 and 17 and 21.

Jeon teaches using PZT, BST, HfO_2 , as high-k materials. However, *Jeon* does not teach a particular gas mixture utilized to etch each high-k material including PZT, BST or HfO_2 . Combining the high-k materials suggested by *Jeon* into the etch process as taught by *Moise* would not yield a method of plasma etching by providing into the etch chamber a process gas comprising carbon monoxide and a halogen containing gas, wherein the carbon monoxide is supplied at a gas flow rate between about 20 sccm and about 300 sccm and the halogen containing gas is supplied at a flow rate between about 20 sccm and about 200 sccm, and a layer of dielectric material comprising at least one of HfO_2 , ZrO_2 , ZrSiO_2 , HfSiO_2 , and TaO_2 as recited by claims 12 and 17 and 21. Thus, a *prima facie* case of obviousness has not been established as the references fail to teach or suggest all of the claimed elements.

Thus, the Applicants submit that independent claims 1, 12, 17 and 21 and all claims depending therefrom, are patentable over *Moise* in view of *Jeon*. Accordingly, the Applicants respectfully request the rejection be withdrawn and claims allowed.

B. 35 U.S.C. §103

Claims 7 and 9-10

Claim 7 stands rejected as being unpatentable over *Moise* in view of United *Jeon* and further in view of United State Patent No., 6,492,222 issued December 10, 2002 to *Xing* (hereinafter referred to as "*Xing*"). Claim 9 stands rejected as being unpatentable over *Moise* in view of United *Jeon* and further in view of United State Patent No., 6,764,792 issued July 20, 2004 to *Fujikawa, et al.*, (hereinafter referred to as "*Fujikawa*"). Claim 10 stands rejected as being unpatentable over *Moise* in view of United *Jeon* and further in view of United State Patent No., 2002/0142609 issued October 3, 2004 to *Hart, et al.*, (hereinafter referred to as "*Hart*"). In response, the Applicants have amended claim 1 to incorporate the elements of cancelled claim 5 to more clearly recite aspect of the invention.

Independent claim 1, as amended, has been indicated as allowable by the Examiner. Thus, claims 7 and 9-10 are patentable at least by virtue of their dependency from claim 1. Accordingly, the Applicants request the rejection of claims 7 and 9-10 be withdrawn and claims allowed.

ALLOWED CLAIMS

The Applicants thank the Examiner for the allowability of claims 5 and 11 if rewritten in independent form to include all the limitations of the base claims. In response, the Applicants have amended claim 1 to incorporate the elements of claim 5 as suggested by the Examiner. Thus, the Applicants believe all claims are all in allowable form.

CONCLUSION

Thus, at least for the reasons discussed above, the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Mr. Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

Nov 14, 2006



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